DOCUMENT RESUME

ED 365 525 SE 053 909

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TITLE Teaching as an Interpretive Inquiry Process.
PUB DATE Oct 92
NOTE 22p.; Paper presented at the Annual Meeting of the Educational Development Center on Action Research and the Reform of Mathematics and Science Education (Cape Cod, MA, October 15-18, 1992).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Action Research; *Classroom Environment; Elementary Secondary Education; *Ethnography; Inquiry; *Mathematics Instruction; Models; *Questioning Techniques; Research Methodology; Teacher Student Relationship
IDENTIFIERS *Psychosocial Factors

ABSTRACT

An ethnographic approach to teacher action research is presented in this paper. The paper argues that an ethnographic, rather than a qualitative approach, should be considered by teachers wishing to engage in interpretive inquiry (action) research because of the focus on classroom and larger cultural contexts on the teaching-learning situation. Issues such as multiple perspectives, subjectivity, role of culture, data analysis and interpretation, and teacher issues related to action research are discussed. The paper proposes an ongoing interactive model of interpretive inquiry research in the teaching-learning context in which teacher-generated questions lead to data collection, analysis, and interpretation, which then leads to both needed changes in instruction and the generation of additional questions to be researched. (Contains 36 references.) (Author)

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ED 365 525

Teaching as an Interpretive Inquiry Process

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Paper Presented at the Educational Development Center Conference on Action Research and the Reform of Mathematics and Science Education, October 15-18, 1992, Cape Cod, MA.

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Abstract

An ethnographic approach to teacher action research is presented in this paper. The author argues that an ethnographic, rather than a qualitative approach, should be considered by teachers wishing to engage in interpretive inquiry (action) research because of the focus on classroom and larger cultural contexts on the teaching-learning situation. Issues such as multiple perspectives, subjectivity, role of culture, data analysis and interpretation, and teacher issues related to action research are discussed. The author proposes an ongoing interactive model of interpretive inquiry research in the teaching-learning context in which teacher-generated questions lead to the data collection/analysis/interpretation cycle which then leads to both needed changes in instruction and generation of additional questions to be researched.

Teaching as an Interpretive Inquiry Process

The most important thing I have learned through this process is that the students have all the answers. I just have to learn how to ask the right questions, and ask them in a way that the students give me the types of understandings I'm after.

- Vicky Brantley, Middle School Gifted Teacher (1992)

It is teachers who, in the end, will change the world of the school by understanding it.

- from an epitaph on a plaque (McKernan, 1987)

Background - Classroom Culture

The foundation of effective action research for any teacher must be the desire to understand the meanings that classroom experiences have for all participants in the context and the intent to use resulting understandings to make classroom interaction more effective. Without understandings of the individually and socially constructed meanings of participants in formal schooling contexts, instructional efforts can be nothing more than the laying out of bounded bodies of knowledge for the consumption of those who might be interested and able to consume what is presented. The latter scenario reflects one of the central problems in the culture of classrooms today: students' perceptions of the teacher and textbook as authority and the resulting inequality in power.

In order to understand this aspect of the culture of the classroom, the larger culture of formal schooling must be examined. From the broader cultural perspective, the

general world view of public school teachers relative to curriculum is that curriculum is determined and imposed "from above." Curriculum committees determine what is to be taught when and these decisions are translated into state-wide curriculum objectives which must be met by every teacher using textbooks from a state-approved list. Building level principals or assistant principals check individual teacher lesson plans weekly or monthly to insure that teachers are covering the defined curriculum in the prescribed way at the appropriate time. Thus, curriculum authority rests in the individuals and committees from whom these dictates come. In a chapter of the *Handbook of Research on Teaching* (Wittrock, 1986), Clark and Peterson report that teacher planning generally reflects concerns of sequencing of content rather than the ways in which students are likely to actually deal with the curriculum content. It appears that the focus of classroom instruction is the knowledge itself rather than the meaning that students construct with it. Without getting into the argument of uniformity of curriculum for quality control, the outcome of such a culture is that teachers unreflectively impose sets of knowledge on groups of students. The students try to learn the content presented by teachers and textbooks. In this culture, questioning by students or teachers is neither encouraged or valued.

One goal of any science or mathematics teacher should be to guide students through the types of inquiry experiences which will enable them to obtain the most current understandings of phenomena as constructed by the scientific community. A more important goal in this process, however, is engaging students in the process of inquiry. Through teacher modeling and direct involvement, students learn the value of inquiry in

knowledge acquisition and generation. Teachers cannot empower students. Students, however, can empower themselves as they develop a scientific world view. Central to the scientific world view is the belief that questioning is the basis of all quests for knowledge. The student who does not question will not discover. They will remain vessels into which knowledge is poured from the authoritative sources which pass through their lives. As students internalize the scientific world view, they will become the expert - the authority - as they begin generating understandings about how the world works through critical assessments of knowledge claims in the literature as well as systematic investigations of their own. They will learn the importance of asking "Why?" - of asking "How?"

The process and excitement of questioning is effectively killed in children at a very young age in formal schooling contexts. Students quickly learn that there is a low value on questioning in the classroom as they are told by teachers (those in authority) that their questions are not good, that their questions are not appropriate relative to topics being presented at the time, that there are no answers to their questions, or that they should simply learn what is in the book or being told to them because what they are asking is "not important." As teachers in higher education, we often wonder why undergraduate and graduate students sit mutely in classes only asking, "What do I have to know?" or "Will it be on the test?" Why should we be surprised? Through such verbal interactions, students are displaying that they have mastered the rules, values, and beliefs of the culture in which they have participated for twelve to sixteen years. They believe that student questioning is unimportant because that belief has been supported across time, situations, and contexts. They learn that the only questions which have value are those

that the teacher poses and for which the teacher already has the "right answer."

Teachers not engaged in inquiry can hardly engage their students in the process or make claims about the value of the process of inquiry. The following description of a teacher (Tobin et al, 1990, p. 223) is not uncommon:

> Despite the school's advocacy for higher-level cognitive learning, and a preference of Sandra for doing and understanding science, she implemented the curriculum in a manner that emphasized coverage of content and learning of terms and facts about science....Even though Sandra had the knowledge that would have enabled her to emphasize learning with understanding, as well as strong beliefs that this was what ought to be done, she implemented the curriculum in such a way that students mostly focused on learning facts.

Administrators cannot empower teachers. Teachers who do not ask questions about the teaching-learning process in general, and the nature of that process in their own classrooms, cannot discover what is effective and do not think to evaluate alternative strategies for enhancing effectiveness. By not taking control of their own situations through systematic inquiry and change, they leave the curricular and classroom learning process decisions to those in positions of power over them.

Genuine interest in learning and use of effective questioning strategies is the foundation of good teaching, action research in classrooms, and student learning. There are many useful sources available to teachers on strategies for developing good questions for questionnaires, interviews, and in instruction (Hunkins, 1989; Patton, 1990; Sudman & Bradburn, 1988). While understanding good questioning strategies is

important, the essential element is more basic. An eagerness to seek explanations for cultural, social, natural, and spiritual phenomena and events and relationships among them is the critical characteristic to develop in teachers and students. Once this exists, acquisition of appropriate questioning strategies will naturally follow.

Teachers as Researchers

The current wave of educational reform is to engage teachers as decision-makers and as researchers. In a relatively recent issue of *The Science Teacher* (Butzow & Gabel, 1986), the National Science Teachers' Association suggests that every teacher be a researcher. The title of Corrine Glesne's article (1991), "Yet Another Role? The Teacher as Researcher?" accurately reflects many teachers' perspectives of the teacher as researcher movement. Adoption of yet another role translates into additional time needed for most teachers. While some research reports lack of time as a major barrier to teachers conducting action research, Oberg and McCutcheon (1987) report that only three of the nine teachers in their study mentioned the problem of lack of time. They hypothesized that ownership of the problem and the payoff of solving a problem important to them was sufficiently motivating that teachers made time for the research. Glesne (1991) argues that by adopting the role of participant observer to become a more effective observer of everyday events in the classroom, teachers do not add an additional role to their existing one, but rather they become more complete teachers using their time effectively in problem solving. I would assert that systematic action research using an ethnographic framework will require more time of teachers because of the generation of

research questions, planning, data recording, and ongoing systematic analysis of data. One teacher engaged in this process commented to me recently, however, "It doesn't seem to be tasks added onto my teaching because this process [observing, documenting in fieldnotes, administering and interpreting open-ended questionnaires] is intrinsic to my teaching."

Ethnographic Action Research

An ethnographic methodology is the most natural approach to action research that science and mathematics teachers could use in the classroom. I use ethnography purposely here rather than qualitative research methods or naturalistic inquiry, because the underlying assumptions of ethnography are quite fitting for educational action research. Teachers functioning from an ethnographic perspective will see their work as a building process moving toward a holistic understanding of the cultural context of teaching and learning rather than isolated bits of data collected periodically using qualitative data collection methods. It is not necessarily the methods employed by the ethnographer that make this such an appropriate strategy, but rather it is the point of view of ethnography. Woods (1986), in his highly thoughtful and methodologically insightful book *Inside Schools: Ethnography in Educational Research*, suggests that it is more important to internalize the ethnographic spirit than to memorize techniques. McKernan (1987), in arguing for better methodology handbooks for action research, noted that as early as 1953, Cory stated that the real problem of action research was one of developing teachers' research skills. I would suggest that for teachers to be good action

researchers, they need to acquire a reasonable balance between understanding and adopting the ethnographic world view and understanding and systematically implementing the methodology of ethnography in the classroom.

World View of Ethnographers

Action researchers should understand and accept the underlying assumptions of ethnography that individuals' perceptions of their experiences and their world views are important and that analysis of the construction of social meaning in context generates understandings as well as questions which enhance future understandings. Culture affects behavior and culture can be inferred from behavior and participants' interpretations of it (Geertz, 1973). Understanding the impact of the larger culture on the culture of a face-to-face group is essential for accurate cultural analysis. Spindler (1982) proposes six features of the ethnographic world view within educational contexts which include: 1) all behaviors occur in contexts and that people and contexts change; 2) all participants are "experts" because what they know or feel is what the ethnographer wants to find out about; 3) there are always tacit, nonverbalized understandings which form the hidden or obscured curriculum and about which participants are frequently unaware; 4) every classroom is an adaptation within a larger culture; 5) making the strange familiar and the familiar strange enables the ethnographer to see her own culture more clearly; and 6) the function of schooling is culture transmission.

Essential aspects of good ethnography are establishing rapport and building a trust relationship with participants (Brown, 1991; Johnson, 1983; Shaffir, Stebbins, & Turowetz,

1980). The teacher as researcher role presents many issues related to rapport, trust, and ethics. Teachers do not need to be concerned about physically "gaining entry" to the research setting since they play a particular role in the setting, but they do need to be aware of the need to establish rapport with students and other participants from the researcher role, which will be different from that of teacher. Action research teachers must balance the roles carefully, neither falling totally into the teacher power role nor "going native" and becoming one of the gang from students' perspectives. The easiest and most effective way to establish trust with students and enhance validity of data is to assure them that whatever perceptions and understandings they share will be accepted as valid. Eliminating the element of judgment in this aspect of action research is important. If teachers remember that students and other classroom participants are the "experts," and it is their perceptions which are valuable, then the process of collecting data from them will become natural. Teachers must inform students of ongoing research and get their consent to collect data. Teachers may encounter difficulties determining the difference between informed and reflective teaching versus research. I would suggest that any teacher conducting action research with an intent to share findings in any forum should inform students of the ongoing data collection and follow local guidelines regarding human subjects agreement.

More important than simply gaining approval from participants, is engaging students and other participants in the educational context in the ongoing data generation and analysis for increased understanding. For example, some of the teachers in the American Association for the Advancement of Science's Project 2061 have begun to use open-

ended questionnaires to determine students' understandings of science concepts and shifts in those understandings after instruction. Having students respond to open-ended questionnaires, reflect on their understandings in daily logs, and group discussions of implications of science activities and experiences brings them actively into the learning process and evaluation of their own learning process and progress rather than relying solely on teachers' grades on end-of-the-unit tests. Using a questioning as learning approach to immerse students in the naturalistic inquiry process will help them develop observational and questioning skills necessary in scientific and mathematical learning.

The Reality of Subjectivity

The issue of subjectivity *must* be addressed with action researchers in education who employ ethnographic or qualitative methods. Clifford Geertz (1973) points out that all anthropological writings are second and third order interpretations of culture. He asserts that only a "native" can make first order interpretations. He goes on to say that a good interpretation of anything takes the reader "into the heart of that of which it is the interpretation." While findings from action research studies by science and mathematics teachers would provide first order interpretations of the culture of science and mathematics classes, the researcher as true participant observer raises the question of subjectivity. Participant observer subjectivity cannot be dismissed, ignored, or neutralized. As participants in the teaching-learning process of a classroom and school, the teacher has biases and expectations about science and mathematics pedagogy as well as the context which will affect what research questions are posed, what data are collected,

which data sources are used, and how data are interpreted. Participant observation and interviewing are highly reactive and interactive processes where the presence of the researcher and the mere fact that questions are being asked change the flow of reality.

Peshkin (1988; Glesne & Peshkin, 1992) proposes that subjectivity is the characteristic which enables the ethnographer to tell the story, but conversely, it is what may block the story from the view of the participant observer. He suggests that participant observers fully explore their subjectivity and use it to enhance data collection in the field. The result of thorough exploration of one's own subjectivity, however, will also reveal areas, phenomena, or persons in the field to which the researcher is blinded by her own biases and expectations. The area which is much more difficult to address in participant observer subjectivity is the hidden curriculum or hidden agenda (Spindler, 1982) which may be operating at such a subconscious level that the teacher as participant in the social context may not be aware of or be able to define. For example, many interactions or behaviors reflecting power inequities which are the result of role, gender, or ethnic differences in the classroom are frequently unnoticed by teachers or students.

Subjectivity which is identified by the action researcher can be documented and balanced methodologically. Teachers can use sampling and focused questioning to identify cases or instances which directly oppose their biases and expectations and support and elaborate on different perspectives. The process of actively seeking perspectives different from one's own can change and enhance the teaching process.

Data Collection, Analysis, and Interpretation

There are numerous good textbooks and handbooks on general qualitative methods and fieldwork issues (Bogdan & Biklen, 1992; Eisner & Peshkin, 1990; Emerson, 1983; Glesne & Peshkin, 1992; Hammersley & Atkinson, 1983; Lincoln & Guba, 1985; Patton, 1990; Sanjek, 1990; Spradley, 1979; Spradley, 1980; Wolcott, 1990). McKernan (1991) and Woods (1986) incorporate ethnographic methods into handbooks of methods for action researchers in education. I feel that Glaser and Strauss (1967) and Strauss (1987) provide an excellent understanding of the theoretical underpinnings and specific processes for ethnographic data analysis. My students (including many inservice teachers) find Strauss and Corbin (1990) and Charmaz (1983) much more readable and assert that these two sources provide an excellent foundation for beginning to make sense of qualitative data.

Providing science and mathematics teachers with a bibliography of these and other resources will not accomplish the goal of having them function as reflective teachers who attempt systematically collect, analyze and interpret narrative data to understand the culture of their classrooms, however. Schools of teacher education must reform curricula to include intensive study and practice of using ethnographic techniques in teaching and teacher research to improve education. Ethnographic researchers must function as mentors for teachers in ongoing data collection and analysis situations in the classroom. Inservice workshops for small groups of teachers on strategies for generating appropriate and testable research questions, the nature of participant observation, interviewing strategies with students, systematic analysis of data and data interpretation are essential

if teachers are expected to research classrooms systematically and build understandings which will enable them to know and positively affect the culture of their classrooms and the teaching-learning process. Others (Alkove & McCarty, 1992; Farnan & Fearn, 1992; Glesne, 1991; Kelsay, 1991; Schon, 1987) have also argued these same points. It is imperative that ethnographic researchers in education collaborate with program faculty in colleges of education to rethink the focus of teacher education and the collaborative nature of researchers with inservice teachers.

One of the most important things that action research teachers in science and mathematics can internalize is the ongoing and cyclical nature of ethnographic research in classrooms (see Figure 1).

[insert Figure 1 here]

In understanding this, teachers will realize that it is from their own analysis of their data and that of their students that new questions will arise. They can begin to build the links between understandings from different questions, and thus, begin to generate substantive level theory about pedagogy of science and mathematics. If teachers do not understand the principle of hypothesis and question generation during data analysis, the bits and pieces of data they collect in isolation throughout the year will most likely not inform the larger culture of schooling in which they are engaged. Further, they may miss the importance of systematic data collection for holistic understanding.

Generalizability of Classroom Action Research

Typical questions of comparison and generalizability of findings in anthropology (Emerson, 1983; Holy, 1987) and qualitative research in education (Bogdan & Biklen, 1992; Patton, 1990) are not of concern to action researchers using ethnographic techniques. By definition, action research is "carried out by practitioners seeking to improve their understanding of events, situations and problems so as to increase the effectiveness of their practice (McKernan, 1991). Seeking knowledge about the teaching-learning process from a case study approach will, as Bissex (1987) asserts, enable teacher researchers to see individuals as individuals and when compared, will allow for common traits as well as differences to emerge. In action research, Patton (1990) suggests that the "research methods tend to be less systematic, more informal, and quite specific to the problem, people, and organization for which the research is undertaken." Research studies are generated by reflections of experiences of teachers in their own classroom settings and resulting questions. Answers to these questions are applied in those classrooms.

McKernan (1991) asserts that this type of research does not have as its primary goal the writing of research reports or scholarly articles. Sharing and comparing understandings from ethnographic case studies by teachers is important for generating grounded theory about the teaching-learning process, however. While there are a few books in which teacher researchers have published their findings (Bissex & Bullock, 1987; Goswami & Stillman, 1987), very few have published articles. There are probably two reasons for this phenomenon. First, teachers assuming the role of researcher do not

have the time to review the literature and prepare a scholarly article with findings from every question they pursue in the classroom. Second, teachers generally find that scholarly research is of very little use to them in the classroom and would logically not see this as a medium through which they could share important information with colleagues. Seeing a need for an outlet for this growing important body of data, the Council on Anthropology and Education in the American Anthropological Association has proposed the establishment of a journal specifically for articles from teacher researchers. Oberg and McCutcheon (1987) suggest that since there is little or no incentive for teachers to write the accounts of action research that it is perhaps important for outsiders to collaborate with them in this process. As the scholarly body of science and mathematics action research data increases, theorists using data from classrooms can begin to generate understandings which are more generalizable and which are more relevant to teachers across contexts.

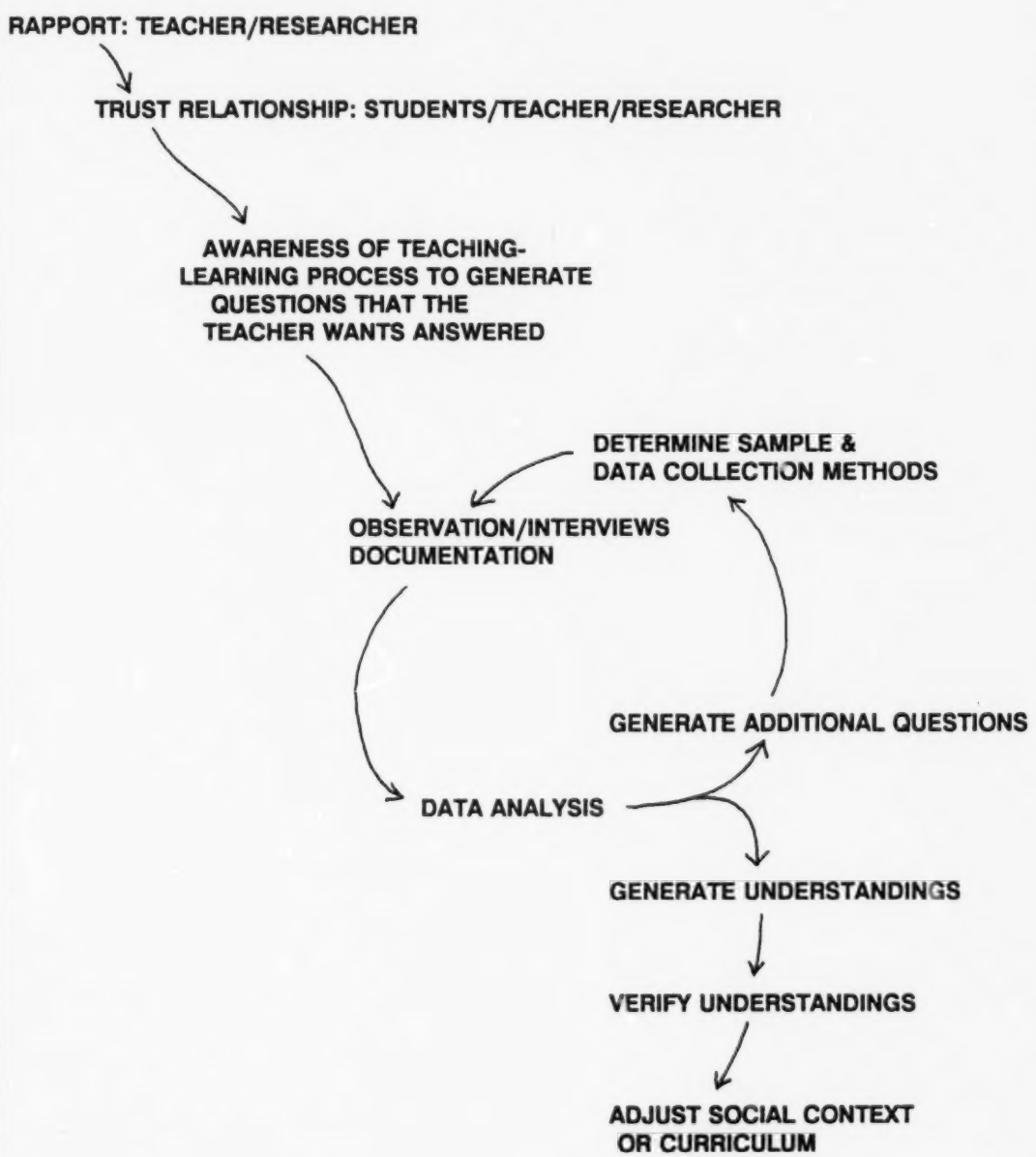
Conclusions

Reform efforts in science and mathematics education are best informed by grounded theory which is generated by teachers in classroom settings. It is important for science and mathematics teachers to engage in action research in their classrooms so that theory and practice can be merged. The philosophical and theoretical underpinnings of ethnographic research are best suited to action research. The teacher's role in interpretive inquiry as action research should be guided by the ethnographic world view including that all participants "experts"; considering ways to use and balance researcher

subjectivity; interpreting understandings, interpretations and behaviors in context; and making the familiar strange through comparative observation outside familiar contexts. Teachers viewing their classrooms as cultures within the larger culture of formal schooling will begin to make necessary connections among findings resulting from naturalistic interpretive inquiry which they conduct in an ongoing and systematic way. It is through identification of the connections among findings that teachers can begin to make positive changes in the curricular and social aspects of the teaching-learning process.

Reform in teacher education coupled with reconfiguration of the role of ethnographic researchers in educational settings to provide mentoring and collaborative relationships to share ethnographic research methodology must occur for the population of science and mathematics teachers to be transformed into reflective and inquiring practitioners. Without global changes at the higher education level, only occasional teachers will be made aware of the importance of naturalistic inquiry for themselves and their students as a component of the teaching-learning process.

Figure 1. Model of teacher/context-centered dynamic and cyclical ethnographic approach to action research.



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